(e) The upper edge of each seasonal and salt water load line mark must indicate the minimum freeboard for that mark.

(f) When two freeboards assigned under this part differ by 2 inches or less, the line for the lesser freeboard must be omitted and the line for the greater freeboard must be identified with the seasonal letters for both freeboards.

(g) Seasonal freeboards that are limited by a summer freeboard assigned under § 45.53(c) must not be marked but the identifying letter must be marked adjacent to the summer mark.

(h) The identity of the authority that assigns the freeboard must be indicated alongside the load line diamond above the horizontal line that passes through the center of the diamond with two initials approximately 4½ inches high and 3 inches wide.

Subpart C—Freeboards

§ 45.51 Types of ships.

(a) For the purpose of this subpart, a type A vessel has—

(1) No cargo ports or similar sideshell openings below the freeboard deck;

(2) Only small freeboard deck openings fitted with watertight gasketed hatch covers of steel;

(3) No dimension of a freeboard deck cargo opening greater than 6 feet and the total area not exceeding 18 ft^2; and

(4) No more than two freeboard deck cargo openings to a single cargo space.

(b) For the purposes of this subpart a type B vessel is a vessel that does not meet the requirements in paragraph (a) of this section.

§ 45.53 Summer freeboard.

(a) Except as required in paragraph (c) of this section, the minimum freeboard in summer for a type A vessel is F in the following formula modified by the corrections in this subpart:

$$F\ (\text{inches}) = 10.2 \times P_1 \times D$$

where P_1 is defined in § 45.55 and D is the depth for freeboard in feet.

(b) Except as required in paragraph (c) of this section, the minimum freeboard in summer for a type B vessel is F in the formula modified by the corrections in this subpart:

$$F\ (\text{inches}) = 12 \times P_1 \times D$$

where P_1 is defined by § 45.55 and D is the depth for freeboard in feet.

(c) Seasonal freeboards assigned under §§ 45.71 through 45.75 must be calculated on the basis of the summer freeboard calculated under paragraph (a) or (b) of this section.

(d) If a minimum freeboard is required for a vessel under this part which is greater than that required by paragraph (a) or (b) of this section because of scantling or subdivision requirements, the summer freeboard and the seasonal freeboards assigned under this subpart must be no less than that minimum freeboard, except the midsummer seasonal freeboard may be calculated on the basis of the summer freeboard assigned under this paragraph.

(e) If a greater than the calculated minimum freeboard is requested by the applicant for the load line certificate, that greater freeboard may be assigned as the summer freeboard and—

(1) The intermediate and winter seasonal freeboards assigned must be calculated under paragraph (a) or (b) of this section; and

(2) The midsummer seasonal freeboard must be calculated on the basis of the summer freeboard assigned under this paragraph.

§ 45.55 Freeboard coefficient.

(a) For ships less than 350 feet in length (L), the freeboard coefficient is P_1 in the formula:

$$P_1 = P + A[(L/D) - (L/D_s)]$$

where P is a factor, which is a function of the length from table 1 and ''A'' is a coefficient, which is a function of length (L), from table 2; L/D is the ratio of the length (L) to the depth for freeboard (D); L/D_s is the ratio of the length (L) to a standard depth (D_s) from table 3.

D is not to be used as less than that which will give a ration of L to D that is:

(a) More than 15 when L=400 feet or less, or

(b) More than 21 when L=700 feet or more, with the ratio for intermediate lengths being calculated proportionately.

(b) For ships 350 feet or more in length (*L*), the coefficient ''A'' is zero and the formula is:

$$P_1 = P$$

where *P* is a factor, which is a function of length from table (1).

§ 45.57 Correction: Position of deckline.

(a) Where the depth to the upper edge of the deckline is greater or less than D, the difference between the depths must be added to or deducted from the freeboard.

(b) When the Commandant or the approved assigning authority approves a location for the deckline that is above or below the freeboard deck, the minimum summer freeboard must be corrected by—

(1) Adding the difference between the depth and D if the depth is greater than D; and

(2) Subtracting the difference between the depth and D, if the depth is less than D.

(c) Except for the adjustment allowed in paragraph (b) of this section, no freeboard of less than 2 in. may be assigned.

§ 45.58 Correction: Short superstructure.

The minimum freeboard in summer for a type B vessel that is 79 ft. or more but less than 500 ft. in length and has enclosed superstructures with an effective length of 25 percent or less of the length of the vessel must be increased by—

$$0.03\ (500 - L)\ (0.25 - E/L)\ \text{inches}$$

where:

(L)=length of vessel in feet;

(E)=effective length of superstructure in feet as defined in § 45.59.

§ 45.59 Definitions for superstructure corrections.

For the purpose of §§ 45.58 through 45.61—

(a) The standard height of a superstructure (H^s) other than a raised quarter deck and the standard height of a trunk (H^s) is determined by the formula:

$$H^s = [6.0 + (L/300)]\ \text{ft}$$

(b) The length of superstructure (*S*) is the length of those parts of the superstructure which extends to the sides of the vessel and that lie within the length (*L*).

(c) The effective length (*E*) of a trunk is its length in the ratio of its mean breadth to *B*.

(d) The effective length (*E*) of an enclosed superstructure of standard height or greater is its length ''*S*''.

(e) Where the height of an enclosed superstructure or trunk is less than the standard height (H_s),the effective length (*E*) is its length reduced in the ratio of its height to H_s.

(f) The effective length (*E*) of a raised quarter deck of $\frac{2}{3}\ H_s$ or greater that has no openings in the front bulkhead is its length up to a maximum of 0.6*L*.

(g) The effective length (*E*) of a raised quarter deck of less than $\frac{2}{3}\ H_s$ or that does not have an intact front bulkhead is its length reduced by the ratio of its height to H_s.

TABLE 12(1)

TABLES OF P VALUES

Length of Ship (feet)	Value of P
80	0.1100
90	0.1136
100	0.1172
110	0.1208
120	0.1244
130	0.1281
140	0.1318
150	0.1355
160	0.1393
170	0.1430
180	0.1468
190	0.1506
200	0.1545
210	0.1583
220	0.1622
230	0.1661
240	0.1700
250	0.1740
260	0.1780
270	0.1820
280	0.1860
290	0.1900
300	0.1941
310	0.1982
320	0.2023
330	0.2065
340	0.2106
350	0.2148
360	0.2190
370	0.2233
380	0.2275
390	0.2318
400	0.2361
410	0.2400
420	0.2437